1860

English 2862 of 1860
Jobson

FIG. 1.

425-264

A three parts lined

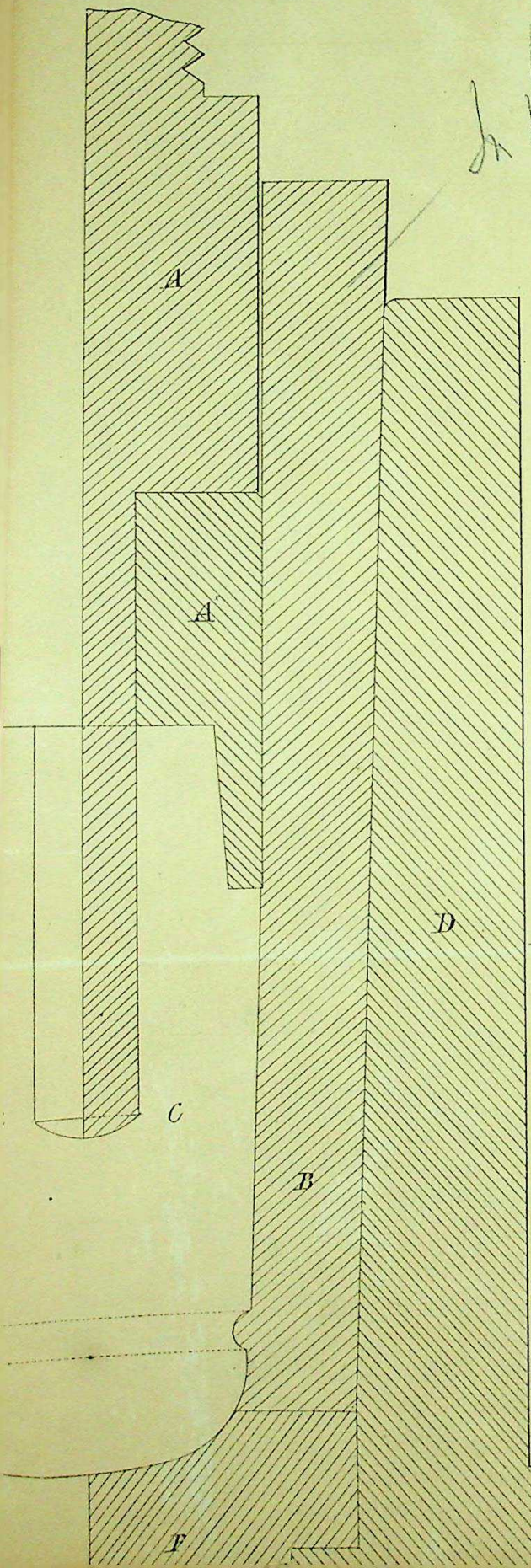


FIG. 2.

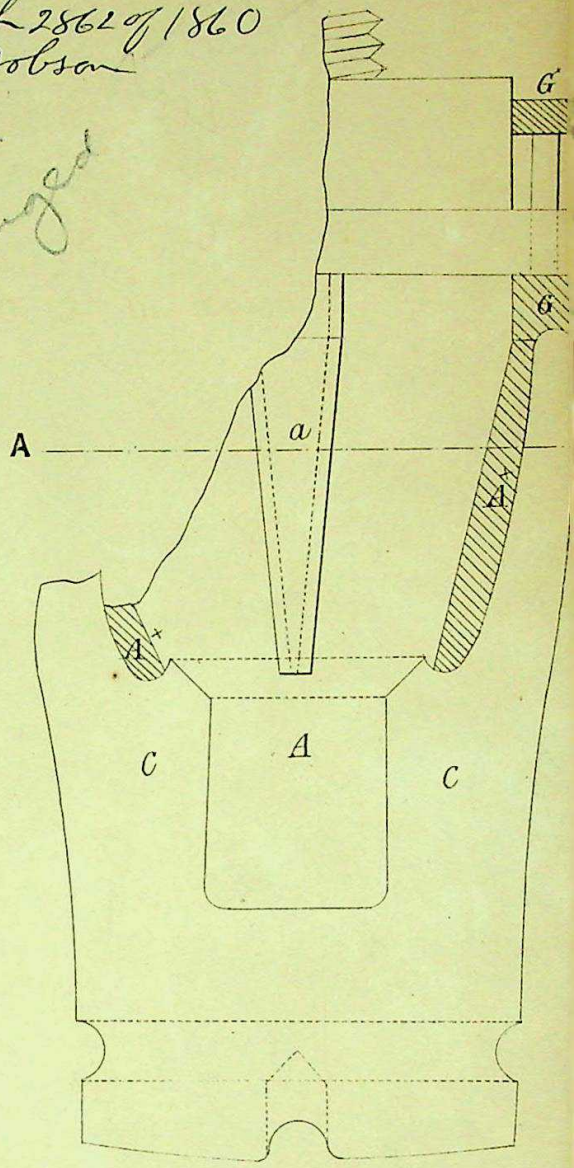
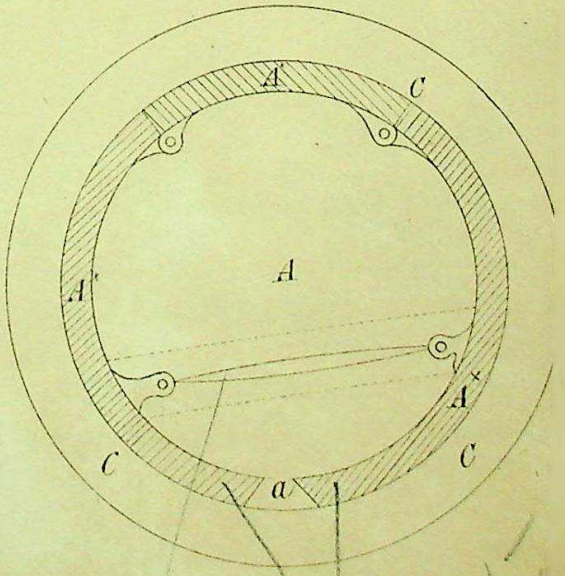


FIG. 3.
Section at A. B.



B

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of 1860
Gibson

FIG. 4.

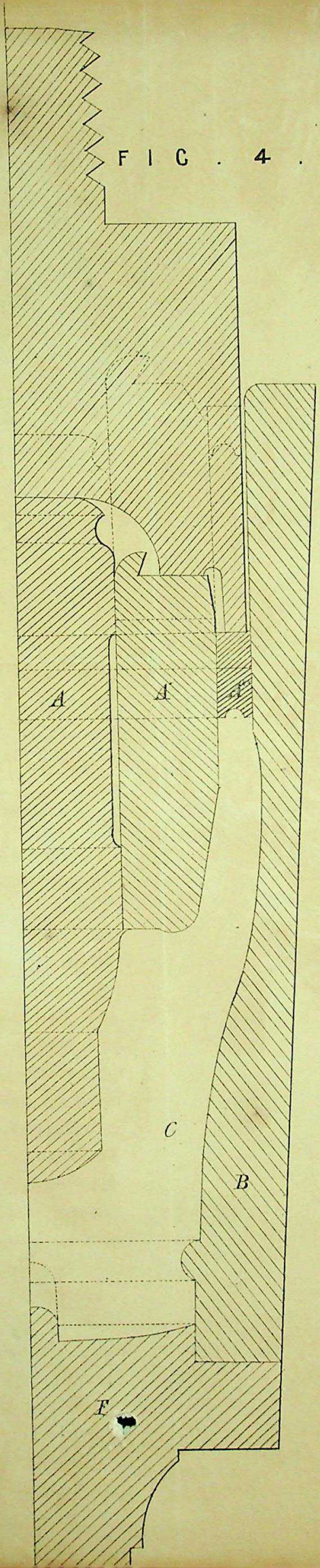

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FIG. 6.

2 Sheets-Sheet-2

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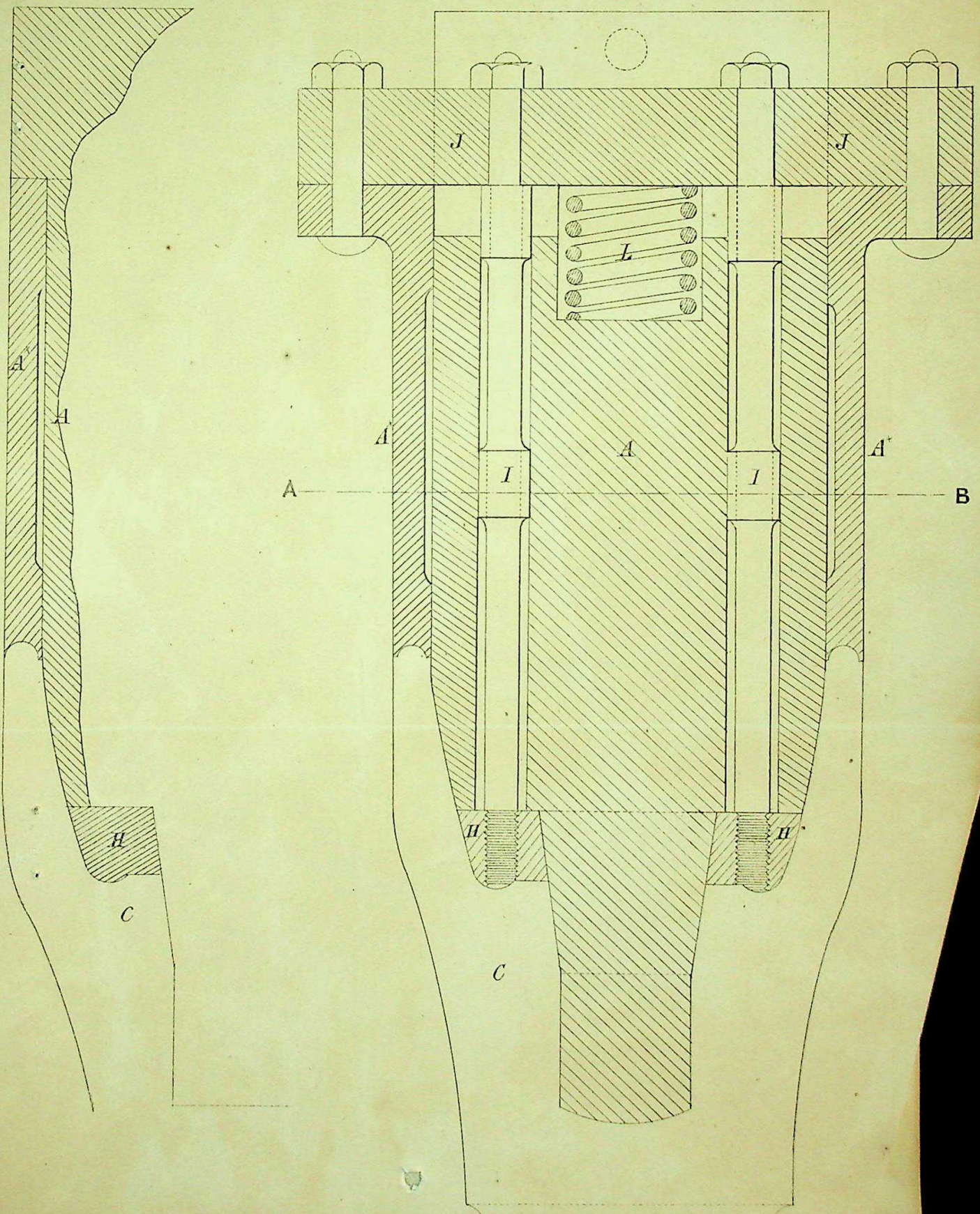
FIG. 8.

Section at C. D.



A.D. 1860, *22nd November.* N° 2862.

Moulding Earthenware or Porcelain.

LETTERS PATENT to Robert Jobson, of Dudley, in the County of Worcester, Engineer, for the Invention of "IMPROVEMENTS IN MOULDING ARTICLES OF EARTHENWARE OR PORCELAIN, AND IN APPARATUS USED THEREIN."

Sealed the 30th April 1861, and dated the 22nd November 1860.

PROVISIONAL SPECIFICATION left by the said Robert Jobson at the Office of the Commissioners of Patents, with his Petition, on the 22nd November 1860.

I, ROBERT JOBSON, of Dudley, in the County of Worcester, Engineer, do hereby declare the nature of the Invention for "IMPROVEMENTS IN MOULDING ARTICLES OF EARTHENWARE OR PORCELAIN, AND IN APPARATUS USED THEREIN," to be as follows:—

This Invention has for its object improvements in moulding articles of earthenware or porcelain. When hollow articles of earthenware or porcelain are moulded from dry or partially dry clay by means of a die or mould and plunger difficulty is in many cases experienced in consequence of the plunger in rising carrying some of the clay up with it, and so destroying or injuring the article. Now according to my Invention in making a plunger for manufacturing hollow articles, in place of making the plunger in one piece of metal as has been usual heretofore, I make the plunger of two parts; the interior or body of the

plunger is made smaller in diameter than the article to be moulded, and it is made up to the full size by a ring of metal fitted on to it. The body of the plunger is made conical, and the ring which fits over it is split at one side, so that it is expanded when it is forced on; and in order that no space may be left between the two ends of the split ring a feather is formed on the body of the plunger to close accurately this space. When an article is to be made with a compound plunger such as above described, the two parts are placed together, and the plunger is employed in all respects as the ordinary plunger is used; but when the plunger is to be withdrawn from the mould the ring by a suitable contrivance is held down while the body is partly withdrawn; the ring then immediately springs in and clears the article, and is then easily withdrawn without injury. In place of employing a spring ring, as above described, the ring may be made in several parts arranged around a body, and when this is withdrawn or partially withdrawn, the parts being capable of moving inwards "deliver" as already described. When as in the manufacture of telegraphic insulators it is required to produce two cups, one within the other, the inner cup springing from the bottom of the outer, then the portion of the plunger which produces the exterior of the inner cup is similarly retained in the mould while the body of the plunger is withdrawn, and this part then springs or moves outwards, so as to clear the article as already described. In the manufacture of some classes of telegraphic insulators and other hollow articles the plunger or inner die is made in parts, which are sometimes concentric with each other, and sometimes in other cases they are not, and they are capable of sliding on or in each other, so that they may be driven or pressed into the mould in succession up to a certain extent, and then driven simultaneously, so as to finish the interior of the article, and by such construction of the plunger or inner die the article of clay thus made in a mould may be held down in such mould by one or more parts of the plunger or inner die, whilst another part or parts of the inner die or plunger is or are removed away; and in place of the plunger or inner die being fixed to and forming part of the instrument which connects it with the fly press, I make such instruments separate from the plunger or inner die, so that the plunger or inner die may receive a succession of blows without being raised out of the mould. The concentric parts of such inner die or plunger are in some cases each composed of two or more pieces.

SPECIFICATION in pursuance of the conditions of the Letters Patent, filed by the said Robert Jobson in the Great Seal Patent Office on the 22nd May 1861.

TO ALL TO WHOM THESE PRESENTS SHALL COME, I, ROBERT JOBSON, of Dudley, in the County of Worcester, Engineer, send greeting.

WHEREAS Her most Excellent Majesty Queen Victoria, by Her Letters Patent, bearing date the Twenty-second day of November, in the year of our Lord One thousand eight hundred and sixty, in the twenty-fourth year of Her reign, did, for Herself, Her heirs and successors, give and grant unto me, the said Robert Jobson, Her special licence that I, the said Robert Jobson, my executors, administrators, and assigns, or such others as I, the said Robert Jobson, my executors, administrators, and assigns, should at any time agree with, and no others, from time to time and at all times thereafter during the term therein expressed, should and lawfully might make, use, exercise, and vend, within the United Kingdom of Great Britain and Ireland, the Channel Islands, and Isle of Man, an Invention for "IMPROVEMENTS IN MOULDING ARTICLES OF EARTHENWARE OR PORCELAIN, AND IN APPARATUS USED THEREIN," upon the condition (amongst others) that I, the said Robert Jobson, my executors or administrators, by an instrument in writing under my, or their, or one of their hands and seals, should particularly describe and ascertain the nature of the said Invention, and in what manner the same was to be performed, and cause the same to be filed in the Great Seal Patent Office within six calendar months next and immediately after the date of the said Letters Patent.

NOW KNOW YE, that I, the said Robert Jobson, do hereby declare the nature of the said Invention, and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement thereof, that is to say:—

This Invention has for its object improvements in moulding articles of earthenware or porcelain. When hollow articles of earthenware or porcelain are moulded from dry or partially dry clay by means of a die or mould and plunger difficulty is in many cases experienced in consequence of the plunger in rising carrying some of the clay up with it, and so destroying or injuring the article. Now according to my Invention, in making a plunger for manufacturing hollow articles, in place of making the plunger in one piece of metal, as has been usual heretofore, I make the plunger of two parts; the interior or body of the plunger is made smaller in diameter than the article to be moulded, and it is made up to the full size by a ring of metal fitted on to it. The body of the

plunger is made conical, and the ring which fits over it is split at one side, so that it is expanded when it is forced on; and in order that no space may be left between the two ends of the split ring a feather is formed on the body of the plunger to close accurately this space. When an article is to be made with a compound plunger such as above described the two parts are placed together, and the plunger is employed in all respects as the ordinary plunger is used; but when the plunger is to be withdrawn from the mould the ring by a suitable contrivance is held down while the body is partly withdrawn; the ring then immediately springs in and clears the article, and is then easily withdrawn without injury. In place of employing a spring ring, as above described, the ring may be made in several parts, arranged around a body, and when this is withdrawn or partially withdrawn, the parts being capable of moving inwards, "deliver" as already described. When, as in the manufacture of telegraphic insulators, it is required to produce two cups, one within the other, the inner cup springing from the bottom of the outer, then the portion of the plunger which produces the exterior of the inner cup is similarly retained in the mould while the body of the plunger is withdrawn, and this part then springs or moves outwards so as to clear the article as already described.

In the manufacture of some classes of telegraphic insulators and other hollow articles, the plunger or inner die is made in parts, which are sometimes concentric with each other, and sometimes in other cases they are not, and they are capable of sliding on or in each other, so that they may be driven or pressed into the mould in succession up to a certain extent and then driven simultaneously so as to finish the interior of the article; and by such construction of the plunger or inner die the article of clay thus made in a mould may be held down in such mould by one or more parts of the plunger or inner die, whilst another part or parts of the inner die or plunger is or are removed away. And in place of the plunger or inner die being fixed to and forming part of the instrument which connects it with the fly press, I make such instrument separate from the plunger or inner die, so that the plunger or inner die may receive a succession of blows without being raised out of the mould. The concentric parts of such inner die or plunger are in some cases each composed of two or more pieces.

Having thus stated the nature of my said Invention I will proceed more fully to describe the manner of performing the same.

Description of the Drawings.

Figure 1 shews a vertical section of parts of apparatus for forming hollow articles according to my Invention; the article shewn in the Drawing is part

of an electric telegraph insulator, but other hollow articles may be similarly formed, the compound plungers and moulds being modified according to the internal and external form of each particular article, which modifications will readily be made by a workman when aided by the description herein given. A and A× are the two parts of which a plunger is composed, and B is the outer mould or die within which the hollow article C is produced. The central part A of the plunger is in one piece, and is fixed to the screw or other press employed. The part A×, which is concentric with the central part A, is, by preference, of three parts, which butt together to form a concentric ring around the central part A of the plunger. It is not necessary that the parts A× of the plunger should be connected together, and it is preferred, in some cases, that they should be separate one from the other. The mould B for making the article shown it is preferred should be in three parts hinged together. The number of the parts of the plunger, and also of the mould, may be varied, depending on the nature and form of the article. The mould is introduced into an exterior mould or holding die D, the interior of which fits the exterior of the mould ; F is the bottom to the mould B and holding die D, by which the mould B and moulded article C are raised out of the outer holding die D. In this arrangement the part A of the plunger would be first lifted out, then the moulded article, and the mould B would be lifted from D, and when the parts of the mould B have been removed the concentric parts A× of the plunger would next be removed from the moulded article. In some cases it is desirable that the exterior ring of the plunger should be capable of being expanded. Figure 2 shows part of a vertical section, and Figure 3 a horizontal section of a plunger, suitable for causing the outer ring to be expanded before the plunger is forced or driven into a similar mould to that above described, varied only to suit the difference of the form of the present insulator C. In the arrangement shown at Figures 2 and 3 the outer ring A× is in three parts hinged together and drawn towards each other by an india-rubber spring which passes through an opening in the inner part A. On the surface of the inner part A of the plunger there is a feather *a* which comes between the parts of the outer ring A× and causes the parts thereof to be expanded, and in this state the plunger is used as if it were of one part only ; G is another outer ring, which is carried by six pins which pass through a ring or projection on the outer surface of the inner part A of the plunger. The upper ends of the pins are fixed to another ring G×, by which arrangement the inner part A of the plunger may be first raised, leaving the outer ring G on the edge of the article, and as the feather is withdrawn the sides of the outer ring A× will become free and at liberty to spring towards each

other, the ring G remaining in position till the inner part A of the plunger is raised out of the article C a sufficient distance for the ring or projection on the part A to lift the ring G×, and consequently the ring G.

In place of the ring A× being in parts it may be formed in one piece, and elastic, so that the two ends may spring towards each other when the feather is withdrawn.

It is found desirable in some cases to produce the desired effect by a succession of impacts on the plungers employed, and that the parts of the plungers should be arranged to be acted on in succession as well as simultaneously; for this purpose the compound plungers used are made separate from the fly or other press used, so that a succession of blows may be given to the parts of a plunger without lifting such parts out of the article which is being formed in a mould; Figure 4 shows a section of a plunger consisting of three parts A, A×, A××, which are acted on by a succession of impacts by the forcer of a press; the dotted lines show the positions which the parts of the plunger may assume at starting; Figure 5 shows a vertical section of a compound plunger, consisting of an internal part surrounded by external concentric rings, suitable for making an insulator C of a particular form, but such parts will be varied when making other forms of insulators or other forms of hollow vessels. In this Figure the mould employed will be such as is above described, but it is not shown in the Drawing; Figure 6 shows a plan of the compound plunger; Figure 7 shows a transverse section thereof, the outer ring being shown to be of one piece, but this may be varied when the particular form of the article to be moulded requires variation in the form and construction of the outer ring or rings of the plunger; Figure 8 is another vertical section taken at right angles to the section, Figure 5; A is the interior part of the plunger, the form of which (for the particular article C) is shown in the Drawing; A× is the outer part or ring of the plunger; H is another outer concentric part or ring of the plunger. This ring H is connected by rods or screw bolts I to the cross head J, which, by screw bolts, is affixed to the outer ring A× of the plunger; K is the ram of the fly or other press used, and it will be evident, from the form of the upper part of the interior of the plunger A, that it may receive a succession of blows.

The cross head is, on its under side, pressed on by a spring L tending to force it upwards within the slit formed at the upper part of the interior portion A of the plunger. The part A of the plunger is withdrawn a distance, whilst the cross head and parts connected therewith are kept pressed down by any suitable means whilst such lifting of the part A is being performed, then the whole of the plunger is lifted out of the moulded article. In the Drawings

I have only thought it necessary to show the plungers and moulds suitable for moulding particular forms of earthenware insulators for electric telegraphs, but a workman, aided by them and the description herein given, will readily prepare plungers and moulds for making other articles, such as tea cups and others. The clays, or compounds containing clay, used in making articles of earthenware or porcelain, are introduced into the moulds used in a dry or partially dry state, in the form of powder, or if preferred, the articles may be first roughly formed or moulded of suitable plastic clay or compounds, and when in a dry or nearly dry state, the articles may be introduced into the moulds and acted on by compound plungers according to my Invention.

In witness whereof, I, the said Robert Jobson, have hereunto set my hand and seal, this Eighteenth day of May, in the year of our Lord One thousand eight hundred and sixty-one.

ROBERT JOBSON. (L.S.)

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Printers to the Queen's most Excellent Majesty. 1861.